

What is claimed is:

Aut A2 1. A back light unit in a liquid crystal display, comprising:

5 a light input for leading a light path of a light beam to the rear side thereof to obtain a high focusing of the light beam.

2. The back light unit according to claim 1, further comprising:

10 a light guide for allowing the light beam from the light input to progress in the vertical direction of a liquid crystal panel.

15 3. The back light unit according to claim 2, wherein the light-guide plate is installed at height different from the light input, and the light input includes:

a lamp for generating the light beam; and

20 a lamp housing having a reflective plate provided at inner side thereof to lead a light path of the light beam generated from the lamp into the rear side thereof.

4. The light unit according to claim 3, wherein the reflective plate is formed to have a sectional view of spiral shape.

5. The light unit according to claim 3, wherein the reflective plate is curved to obtain a desired vertical incident angle of the light beam progressing to the light-guide plate.

6. The light unit according to claim 3, wherein the

reflective plate is curved to have about $\pm 20^\circ$ to 30° in a vertical incident angle of the light beam progressing to the light-guide plate.

Sub A3 5 7. The light unit according to claim 3, wherein the lamp housing includes at least one reflective plate for cutting off the light beam progressing directly from the lamp into the light-guide plate, the at least one reflective plate being protruded from the inner surface of the lamp housing.

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8. The light unit according to claim 2, wherein the light-guide plate includes a plurality of unit patterns formed on one side thereof in parallel with the lamp, the plurality of unit patterns allowing the light beam from the lamp housing to be progressing perpendicularly into the liquid crystal panel.

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9. The light unit according to claim 8, wherein the unit pattern includes:

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a land protruded at a desired incline from one surface of the light-guide plate; and

a groove extended from the land to have a desired incline.

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10. The light unit according to claim 9, wherein an angle between the one surface of the light-guide plate and the land is about 9° to 12° , an angle between the one surface of the light-guide plate and the groove is about 35° to 45° , the groove has a height of about 3 to 5 times relative to the land, and the unit pattern is about 100 to 400 μm in width.

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11. The light unit according to claim 8, wherein the unit pattern includes a groove having a sectional view of triangular shape.

- 5 12. The light unit according to claim 11, wherein an angle between one surface of the light-guide plate and one surface of the groove is about 40° to 50°, and an angle between one surface of the light-guide plate and another surface of the groove is about 30° to 90°.

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sub A5 13. The light unit according to claim 11, wherein the light-guide plate is disposed at the rear side of transmissive liquid crystal panel, and

- 15 the lamp housing leads the light beam from the lamp to the incident side of the light-guide plate disposed at the rear side of the transmissive liquid crystal panel.

14. The light unit according to claim 13, further comprising a rear reflective plate for reflecting the
20 light beam from the rear surface of the light-guide plate toward the transmissive liquid crystal panel.

- sub A6* 15. The light unit according to claim 15, wherein the light-guide plate includes a plurality of prism patterns
25 arranged on another surface thereof in intersection with the unit patterns.

16. The light unit according to claim 8, wherein the light-guide plate is disposed at the front side
30 of transmissive liquid crystal panel, and the lamp housing leads the light beam from the lamp to the incident side of the light-guide plate disposed at the front side of the transmissive liquid crystal panel.

17. The light unit according to claim 16, wherein a distance between the start point and the angular point of the land is within 200 μ m.

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18. The light unit according to claim 8, wherein a distance between the unit patterns is gradually short as far away from the incident side of the light-guide plate.

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